

CLAIMS

What is claimed is:

1. A method of managing network resources in a radio network comprising:
establishing a packet data connection with an access terminal;
5 allocating network resources to said packet data connection with said access
terminal, said network resources including a fundamental radio frequency
channel and a supplemental radio frequency channel;
monitoring the activity status of said packet data connection using first and
second timers, said second timer having a duration value longer than said
first timer;
releasing said supplemental channel if said packet data connection is inactive for
a period that exceeds said duration value of said first timer while
maintaining said connection with said fundamental frequency channel;
and
10 releasing said fundamental frequency channel if said packet data connection is
inactive for a period that exceeds said duration value of said second
timer.
2. The method of claim 1 further comprising allocating base station controller
20 resources to said packet data connection.
3. The method of claim 2 further comprising maintaining said base station
controller resources after expiration of said first timer.

4. The method of claim 3 further comprising initiating call tear-down procedures to release said base station controller resources when said second timer expires.

5. A base station for a radio network comprising:

5 a base transceiver station for communicating with an access terminal over a
fundamental frequency channel and a supplemental frequency channel;
a base station controller to perform channel allocation and supervision, said base
station controller having first and second timers and programmed to:
allocate said fundamental radio frequency channel and said supplemental
radio frequency channel to said access terminal to establish or
maintain a packet data connection with said access terminal;
monitor the activity status of said packet data connection using said first
and second timers, said second timer having a duration value
longer than said first timer;
release said supplemental channel if said packet data connection is
inactive for a period that exceeds said duration value of said first
timer while maintaining said connection with said fundamental
frequency channel; and
release said fundamental frequency channel if said packet data
connection is inactive for a period that exceeds said duration
value of said second timer.

6. The base station of claim 5 wherein said base station controller is further
programmed to allocate base station controller resources to support said packet data
connection.

7. The base station of claim 6 wherein said base station controller is further programmed to maintain said base station controller resources after expiration of said first timer.

5 8. The base station of claim 7 wherein said base station controller is further programmed to release said base station controller resources after expiration of said second timer.

9. A method of connection supervision in a radio network, the method comprising:
allocating resources to a connection between the radio network and a wireless
access terminal in response to receiving a request from the wireless
access terminal, said resources including RF resources and base station
controller (BSC) resources;
releasing a portion of the RF resources allocated to the connection if the
connection remains inactive for longer than a first time out period; and
releasing a remaining portion of RF resources and said BSC resources if the
connection remains inactive for longer than a second time out period, said
second time out period greater than said first time out period.

20 10. The method of claim 9 wherein releasing a portion of the RF resources allocated to the connection if the connection remains inactive for longer than a first time out period comprises de-allocating at least one RF channel allocated to said connection at a radio base station in said radio network.

11. The method of claim 9 wherein releasing a portion of the RF resources allocated to the connection if the connection remains inactive for longer than a first time out period comprises reducing the RF bandwidth allocated to said connection.

5 12. The method of claim 9 wherein said BSC resources connection processing resources in said BSC that are allocated to supporting said connection, and wherein releasing a remaining portion of RF resources and said connection processing resources if the connection remains inactive for longer than a second time out period comprises initiating call tear-down procedures to de-allocate said connection processing resources and said remaining portion of RF resources.

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15 13. The method of claim 9 further comprising setting the relative duration of said first and second time out periods to maximize the number of connections that can be supported by said radio network on average based on a relationship between RF resource capacity of said radio network and connection processing capacity of said radio network.